

This Page Is Inserted by IFW Operations  
and is not a part of the Official Record

## **BEST AVAILABLE IMAGES**

Defective images within this document are accurate representations of the original documents submitted by the applicant.

Defects in the images may include (but are not limited to):

- BLACK BORDERS
- TEXT CUT OFF AT TOP, BOTTOM OR SIDES
- FADED TEXT
- ILLEGIBLE TEXT
- SKEWED/SLANTED IMAGES
- COLORED PHOTOS
- BLACK OR VERY BLACK AND WHITE DARK PHOTOS
- GRAY SCALE DOCUMENTS

**IMAGES ARE BEST AVAILABLE COPY.**

**As rescanning documents *will not* correct images,  
please do not report the images to the  
Image Problem Mailbox.**



# UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER FOR PATENTS  
P.O. Box 1450  
Alexandria, Virginia 22313-1450  
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/903,100	07/11/2001	Ramesh Subramanian	GSH 08-885923	1887
27667	7590	07/14/2004	EXAMINER	
HAYES, SOLOWAY P.C. 130 W. CUSHING STREET TUCSON, AZ 85701			CAO, DIEM K	
			ART UNIT	PAPER NUMBER
			2126	

DATE MAILED: 07/14/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

## Office Action Summary

### Application No.

09/903,100

### Applicant(s)

SUBRAMANIAN ET AL.

### Examiner

Diem K Cao

### Art Unit

2126

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 26 April 2004.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-34 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-34 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_\_.
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_.

### DETAILED ACTION

1. Claims 1-34 remain in the application. Applicant has amended claims 1, 4, 7, 9, 13, 14, 21, 23-24, 26, and 33-34.

#### *Claim Rejections - 35 USC § 112*

2. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

3. Claims 1-34 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claims 1, 13, 21, 24, 33 and 34 recite the limitation "translating the trapped exception into an exception that the application is capable of handling" which is unclear because the limitation "an exception" is used before.

Claim 13 recites "an operating system having one or more low level exception handlers and a top level exception handler" and "translating the trapped exception into an exception that the application is capable of handling", wherein the claim 14 recites "the translating step translates the trapped exception into an exception which is able to be resolved by a lower level exception handler" which is conflict because the lower level exception handler is the OS level, and claim 13 claims translate the exception so the application can handle.

Corrections are required.

*Claim Rejections - 35 USC § 103*

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. Claims 1, 3-4, 7, 13-14, 21, 23-24, 26, and 33-34 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kannan et al. (U.S. 5,815,702) in view of Bak et al. (U.S. 6,415,381 B1).

6. **As to claim 1**, Kannan teaches receiving an exception caused due to a runtime fault in a thread executing the application (The current instruction 302 ... a general protection fault; col. 6, line 66 – col. 7, line 2), dispatching the exception to an exception handler (The operating system ... to the chain of exception handlers; col. 7, lines 5-8), trapping the exception before the exception reaches the exception handler when the exception handler is a top level exception handler which terminates the application (The exception handler 115 ... terminate the application; col. 4, lines 44-47 and col. 1, line 48 – col. 2, line 11), and continuing execution of the application (the application to continue executing; col. 4, lines 58-64 and the exception handler ... in the proper manner; col. 7, lines 29-33).

7. However, Kannan does not teach translating the trapped exception into an exception that the application is capable of handling. Bak teaches translating the trapped exception into an

Art Unit: 2126

exception that the application is capable of handling (Transform the C++ exception to a Java exception before the exception is passed on; col. 11, lines 50-55).

8. It would have been obvious to one of ordinary skill in the art at the time the invention was made to combine the teaching of Kannan and Bak because it would improve the performance the system of Kannan by being able to handle the exception in multiple programming languages.

9. **As to claim 3**, Kannan teaches determining a corresponding exception handler to which the exception is to be dispatched (The operating system ... the chain 114 of exception handlers; col. 7, lines 5-8 and The operating system includes ... by the OS itself; col. 4, lines 24-30), dispatching the exception to the corresponding exception handler when the corresponding exception handler exists (When exception handler 115 is trigger; col. 7, lines 12-14), and dispatching the exception to a top level dispatcher is the corresponding exception handler when no corresponding exception handler exists (Certain types of application errors ... fatal exception; col. 1, line 47 – col. 2, line 11).

10. **As to claim 4**, Kannan teaches dispatching the trapped exception to a trapped exception handler (When exception handler 115 is trigger; col. 7, lines 12-14 and The exception handler 115 ... terminate the application; col. 4, lines 44-47).

Art Unit: 2126

11. **As to claim 7**, Kannan does not explicitly teach the translating step translates the trapped exception into an exception which is able to be resolved by a lower level exception handler, and determining if there is a lower level exception handler which is capable of resolving the translated exception. Bak teaches the translating step translates the trapped exception into an exception which is able to be resolved by a lower level exception handler (Transform the C++ exception to a Java exception before the exception is passed on; col. 11, lines 50-55), and determining if there is a lower level exception handler which is capable of resolving the translated exception (When an exception is generated ... for that exception; col. 11, lines 25-29). It would have been obvious to one of ordinary skill in the art at the time the invention was made to combine the teaching of Kannan and Bak because it would improve the performance the system of Kannan by being able to handle the exception in multiple programming languages.

12. **As to claim 13**, see rejection of claim 1 above. Kannan further teaches the application being executed under an operating system having one or more low level exception handlers and a top level exception handler (Loaded into and executing ... processor of a computer; col. 4, lines 4-12 and The operating system ... itself; col. 4, lines 23-30).

13. **As to claim 14**, see rejection of claim 7 above.

14. **As to claim 21**, it corresponds to the method claim of claim 1 except it is a computer system claim.

Art Unit: 2126

15. **As to claim 23**, Kannan teaches the exception trapper is provided in place of a top level exception handler which terminates the application (The exception handler 115 is inserted in the exception handler chain 114 ahead of all operating system provided exception handlers; col. 6, lines 37-42).

16. **As to claim 24**, Kannan teaches an application system for recovering an application from a runtime fault caused in a thread (A method ... a fatal exception; abstract), the application running under an operating system having an exception dispatcher (inherent from the operating system ... of exception handlers; col. 7, lines 5-8), one or more low level exception handlers and a top level exception handler which terminates the application (The operating system ... itself; col. 4, lines 23-30 and Certain types of application errors ... fatal exception; col. 1, line 47 – col. 2, line 11), an exception trapper placed between the exception dispatcher and the top level exception handler for trapping an exception before the exception reaches the top level exception handler (The exception handler 115 is inserted in the exception handler chain 114 ahead of all operating system provided exception handlers; col. 6, lines 37-42 and The exception handler 115 ... terminate the application; col. 4, lines 44-47), the exception being caused due to a runtime fault in a thread executing an application (The current instruction 302 ... a general protection fault; col. 6, line 66 – col. 7, line 2), and a trapped exception handler for handling the trapped exception (The exception handler 115 ... terminate the application; col. 4, lines 44-47 and the crash guard process 107; col. 4, lines 38-64).



Art Unit: 2126

17. However, Kannan does not teach an exception translator for translating the trapped exception into an exception that the application is capable of handling. Bak teaches translating the trapped exception into an exception that the application is capable of handling (Transform the C++ exception to a Java exception before the exception is passed on; col. 11, lines 50-55).

18. It would have been obvious to one of ordinary skill in the art at the time the invention was made to combine the teaching of Kannan and Bak because it would improve the performance the system of Kannan by being able to handle the exception in multiple programming languages.

19. **As to claim 26**, see rejection of claim 3 above.

20. **As to claims 33 and 34**, they correspond to the method claim of claim 1 except they are computer readable memory element of computer electronic signals claims, respectively.

21. Claims 2, 5-6, 8, 15-16, 22, 25 and 27-28 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kannan et al. (U.S. 5,815,702) in view of Bak et al. (U.S. 6,415,381 B1) further in view of Anschuetz et al. (U.S. 5,305,455).

22. **As to claim 2**, Kannan does not teach terminating the thread that caused the exception. Anschuetz teaches terminating the thread that caused the exception (col. 5, lines 9-16). It would have been obvious to one of ordinary skill in the art at the time the invention was made to

Art Unit: 2126

combine the teaching of Kannan and Anschuetz because it provides a method to handle the exception on a per thread basis.

23. **As to claim 5**, Kannan does not teach terminating the thread when the trapped exception handler is not capable of resolving the trapped exception. Anschuetz teaches terminating the thread that caused the exception (col. 5, lines 9-16). It would have been obvious to one of ordinary skill in the art at the time the invention was made to combine the teaching of Kannan and Anschuetz because it provides a method to handle the exception on a per thread basis.

24. **As to claim 6**, Kannan does not teach the continuing step allows continuing execution of the application after the thread is terminated. Kannan teaches the application is continue execution after the application generates a fatal exception which always causes termination to the application (abstract). Anschuetz teaches terminating the thread that caused the exception (col. 5, lines 9-16). It would have been obvious to one of ordinary skill in the art at the time the invention was made to combine the teaching of Kannan and Anschuetz because it provides a method to handle the exception on a per thread basis, and the application has change to continue execution.

25. **As to claim 8**, Kannan does not teach terminating the thread that caused the exception when there is no lower level exception which is capable of resolving the translated exception. Kannan teaches the application is terminated when there is no lower level exception which is capable of resolving the exception (col. 1, line 47 – col. 2, line 11). Anschuetz teaches

Art Unit: 2126

terminating the thread that caused the exception (col. 5, lines 9-16). It would have been obvious to one of ordinary skill in the art at the time the invention was made to combine the teaching of Kannan and Anschuetz because it provides a method to handle the exception on a per thread basis, and the application has a chance to continue execution.

26. **As to claim 15**, see rejection of claim 8 above.

27. **As to claim 16**, see rejection of claim 2 above.

28. **As to claim 22**, see rejection of claim 2 above.

29. **As to claim 25**, see rejection of claim 2 above.

30. **As to claim 27**, see rejection of claim 2 above.

31. **As to claim 28**, Kannan teaches the trapped exception handler further comprises a state restorer for restoring the state that the application was in before the fault occurred to continued the execution of the application (col. 7, lines 3-5).

32. Claims 9-12, 17-20, and 29 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kannan et al. (U.S. 5,815,702) in view of Bak et al. (U.S. 6,415,381 B1) and Anschuetz et al. (U.S. 5,305,455) further in view of LeVine et al. (U.S. 6,591,379 B1).

33. **As to claim 9**, Kannan does not teach logging state information representing the state that the application was in before occurrence of the exception caused the termination of the thread. LeVine teaches logging state information representing the state that the application was in before occurrence of the exception caused the termination of the thread (col. 7, lines 2-7 and col. 8, lines 41-46 and Fig. 5). It would have been obvious to one of ordinary skill in the art at the time the invention was made to combine the teaching of Kannan and LeVine because LeVine's logging state information would improve the reliability of Kannan's system by saving all necessary information for later recovery.

34. **As to claim 10**, Kannan does not teach forwarding the logged information to a remote database over a computer network. LeVine teaches forwarding the logged information to a remote database over a computer network (col. 7, lines 5-8).

35. **As to claim 11**, Kannan teaches receiving a recommendation from the remote database (col. 6, lines 15-18), and informing the recommendation to the user (col. 7, lines 34-44).

36. **As to claim 12**, Kannan does not teach forwarding a bug report to a bug report center over a computer network. LeVine teaches forwarding a bug report to a bug report center over a computer network (col. 8, lines 1-8).

37. **As to claim 17**, see rejection of claim 9 above.

38. **As to claim 18**, see rejection of claim 10 above.

39. **As to claim 19**, see rejection of claim 11 above.

40. **As to claim 20**, see rejection of claim 12 above.

41. **As to claim 29**, see rejection of claim 9 above.

42. Claims 30-32 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kannan et al. (U.S. 5,815,702) in view of Bak et al. (U.S. 6,415,381 B1), Anschuetz et al. (U.S. 5,305,455) and LeVine et al. (U.S. 6,591,379 B1) further in view of Lillevold (U.S. 6,230,284 B1).

43. **As to claim 30**, Kannan does not teach a query generator for generating a query including the state information to query a recommendation from a remote database over a computer network. Lillevold teaches the crash handler program determines the state of the computer, sends the information to the server, and the server, based on this information, send revision code to the computer to avoid the crash next time (col. 3, lines 21-27). It would have been obvious to one of ordinary skill in the art at the time the invention was made to combine the teaching of Kannan and Lillevold because it would improve the performance of Kannan system by obtaining correct help from server when it is not available locally.

Art Unit: 2126

44. **As to claim 31**, see rejection of claim 11 above.

45. **As to claim 32**, see rejection of claim 12 above.

*Response to Arguments*

46. Applicant's arguments with respect to claims 1-34 have been considered but are moot in view of the new ground(s) of rejection.

*Conclusion*

47. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the date of this final action.

Art Unit: 2126

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Diem K Cao whose telephone number is (703) 305-5220. The examiner can normally be reached on Monday - Thursday, 9:00AM - 5:00PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Meng-Ai An can be reached on (703) 305-9678. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

**Any response to this action should be mailed to:**

Commissioner for Patents  
PO Box 1450  
Alexandria, VA 22313-1450

Diem Cao

